



Auditory External Representations of Programs

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Lexicon of Auditory Display

Words Used in Auditory Display Research.

Like all good fields of computing research, auditory display is not without its technical words (jargon). Being a relatively new field the vocabulary available is insufficient to describe all the new ideas and thus the various researchers have, where needed, coined words to describe their work.

I have attempted to gather together all the terms currently in use and to provide a definition of each. Where existing words have been used I have simply provided the definition as given in *Chambers English Dictionary* and suffixed by [Ch]. Where an additional meaning has been applied to an existing word the definition is given and its source shown in brackets.

The second group of terms is those that have been coined by researchers into auditory display. The researchers' own definitions are given and the source in brackets.

Sources of Definitions

[Ch] = Chambers English Dictionary

[AD] = *Auditory Display*, ed. Gregory Kramer, Proc. Vol XVIII Santa Fe Institute Studies in the Sciences of Complexity; Addison-Wesley Reading MA, 1994.

Definitions from *Auditory Display*, unless prefixed by an author's name are provided by Gregory Kramer.

Dictionary Definitions

- **Audient** - *adj.* listening: paying attention. - *n.* a hearer [Ch].
- **Audile** - *adj.* pertaining to hearing. - *n.* one inclined to think in terms of sound. [Ch]. C.f. visile.
- **Audio** - *n.* reproduction of recorded or broadcast sounds (also *adj.*) [Ch].
- **Audition** - *n.* the sense, or an act, of hearing [Ch].

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Lexicon

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- **Auditive** - *adj.* of, or related to, hearing [Ch].
- **Auditory** - *adj.* relating to the sense of hearing.
- **Aural** - *adj.* pertaining to the ear - *adv.* aurally [Ch].
- **Synaesthesia**, in US **synesthesia** - *n.*

1. sensation produced at a point different from the point of stimulation: a sensation of another kind suggested by one experience (e.g. in colour-hearing). - *adv.* synaesthetic [Ch].
2. the substitution of one sensory modality for another [AD pp 11].

- **Visile** - *adj.* of or pertaining to sight: learning by means of visual images and recalling such images readily. - *n.* one whose imagery naturally takes a visual form [Ch]. C.f. audile.

Coined Terms

- **Audiation** - *n.* The mental review of sonic experiences with an auditory display [AD pp 188]. C.f. **ideation** - *n.* the power of the mind for forming ideas [Ch].
- **Audification** - *n.* the direct playback of data samples [AD pp xxvii]: the direct conversion of data to sound [AD pp 190]. C.f. sonification.
- **Audiolisation** - *n.* see auralisation.
- **Auditory icon** - *n.* a mapping of computer events and attributes to the events and attributes that normally make sounds...In general, the result is to relate interface sounds to their referents in the same way that natural sounds are related to their sources and, thus, to allow people to use their existing everyday listening skills in listening to computers [Gaver, AD pp 420]: a caricature of sounds occurring as a result of our everyday interactions with the world ... mapped onto events and objects in the interface about which [it provides] auditory feedback [Lucas, An Evaluation of the Communicative Ability of Auditory Icons and Earcons, 1994]. C.f. earcon. An auditory icon uses sound effects whereas earcon is music-based.
- **Auralisation** - *n.* the auditory representation or "imaging" of data [AD pp xxvii]: the representation of program data using sound...an auralisation is based on the actual execution data of the program [Jackson, AD pp 292]. C.f. sonification.
- **Earcon** - *n.* tone or sequence of tones as a basis for building messages [Blattner, AD pp 450]: a nonverbal audio message used in the user-computer interface to provide information to the user about some computer object, operation, or interaction: the aural counterpart of an icon [Blattner et al. Earcons and Icons: Their Structure and Common Design Principles, 1989]. C.f. auditory icon.
- **Sonification** - *n.* a mapping of numerically represented relations in some domain under study to relations in an acoustic domain for the purposes of interpreting, understanding, or communicating relations in the domain under study [Scaletti, AD pp 224]: data-controlled sound [AD pp xxvii]: "Processes that disrupt the relationships of successive samples in favour of simplifying and enhancing features of the data, such as multiplying the data by a cosine wave, would be classified as sonification [AD pp 190].

Email

No.	Publication No.	Title
1.	<u>2000 - 311257</u>	SHARED VIRTUAL SPACE DISPLAY SYSTEM, CONSTRUCTION METHOD OF DISTRIBUTED OBJECT MECHANISM AND RECORDING MEDIUM
2.	<u>2000 - 311256</u>	SHARED VIRTUAL SPACE DISPLAY SYSTEM, AVATAR DISPLAY METHOD AND RECORDING MEDIUM
3.	<u>2000 - 311255</u>	SHARED VIRTUAL SPACE DISPLAY SYSTEM AND METHOD AND RECORDING MEDIUM
4.	<u>2000 - 244886</u>	COMPUTER CONFERENCE SYSTEM, COMPUTER PROCESSOR, METHOD FOR COMPUTER CONFERENCE, PROCESSING METHOD OF COMPUTER PROCESSOR, VIDEO CONFERENCING SYSTEM, METHOD FOR VIDEO CONFERENCING, AND HEADPHONES
5.	<u>2000 - 236330</u>	METHOD AND DEVICE FOR DISTRIBUTING VOICE FOR CLIENT/ SERVER TYPE DIGITAL AUDIO CONFERENCE SYSTEM
6.	<u>2000 - 231644</u>	SPEAKER, SPECIFYING METHOD FOR VIRTUAL SPACE AND RECORDING MEDIUM WHERE PROGRAM THEREOF IS RECORDED
7.	<u>2000 - 231474</u>	METHOD AND DEVICE FOR LOCATION CONTROL OVER SOUND SOURCE IN MULTI-USER VIRTUAL SPACE AND RECORDING MEDIUM WHERE PROGRAM THEREOF IS RECORDED
8.	<u>2000 - 215324</u>	THREE-DIMENSIONAL SPACE DISPLAY DEVICE USING MULTI-USER TYPE TEXTURE, SPACE DISPLAYING METHOD AND SPACE DISPLAYING METHOD RECORDING MEDIUM
9.	<u>2000 - 209613</u>	PANORAMA PICTURE GENERATING METHOD, SURROUNDING STATE TRANSFER METHOD USING PANORAMA PICTURE AND RECORDING MEDIUM RECORDING THE METHOD
10.	<u>2000 - 149068</u>	DEVICE AND METHOD FOR PROCESSING INFORMATION AND PROVIDING MEDIUM
11.	<u>2000 - 149063</u>	METHOD, DEVICE FOR PROCESSING INFORMATION AND PROVIDING MEDIUM
12.	<u>2000 - 113222</u>	INFORMATION PROCESSOR, INFORMATION PROCESSING METHOD AND PROVISION MEDIUM
13.	<u>2000 - 113221</u>	INFORMATION PROCESSOR, INFORMATION PROCESSING METHOD AND PROVISION MEDIUM
14.	<u>2000 - 113220</u>	INFORMATION PROCESSOR, INFORMATION PROCESSING METHOD AND PROVISION MEDIUM
15.	<u>2000 - 113219</u>	INFORMATION PROCESSOR, INFORMATION PROCESSING METHOD AND PROVISION MEDIUM
16.	<u>2000 - 113218</u>	INFORMATION PROCESSOR, METHOD AND RECORDING MEDIUM
17.	<u>2000 - 113217</u>	MAKING METHOD OF 3D FACE MODEL FROM STARTING FACIAL IMAGE
18.	<u>2000 - 099225</u>	DEVICE AND METHOD FOR PROCESSING INFORMATION AND DISTRIBUTION MEDIUM
19.	<u>2000 - 090288</u>	FACE IMAGE CONTROL METHOD FOR THREE-DIMENSIONAL SHARED VIRTUAL SPACE COMMUNICATION SERVICE, EQUIPMENT FOR THREE-DIMENSIONAL SHARED VIRTUAL SPACE COMMUNICATION AND PROGRAM RECORDING MEDIUM THEREFOR
20.	<u>2000 - 076487</u>	DEVICE AND METHOD FOR PROCESSING INFORMATION, AND PROVIDING MEDIUM
21.	<u>2000 - 050226</u>	METHOD AND SYSTEM FOR MULTIMODAL AND ASYNCHRONOUS CONFERENCE WITH INTERVENTION OF COMPUTER EXISTING IN VIRTUAL SPACE
22.	<u>2000 - 048224</u>	DEVICE AND METHOD FOR INFORMATION PROCESSING AND PROVIDED MEDIUM
23.	<u>2000 - 040162</u>	METHOD AND SYSTEM FOR SHARED SPACE DISPLAY IN VIRTUAL SPACE AND STORAGE MEDIUM STORED WITH

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Searching PAJ

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		SHREAD SPACE DISPLAY PROGRAM
24.	<u>2000 - 040161</u>	METHOD AND SYSTEM FOR ACTUALIZING BROADCAST TYPE CONTENT IN THREE-DIMENSIONAL SHARED VIRTUAL SPACE AND STORAGE MEDIUM STORED WITH BROADCAST TYPE CONTENT ACTUALIZING PROGRAM IN THREE-DIMENSIONAL VIRTUAL SPACE
25.	<u>2000 - 040088</u>	METHOD AND SYSTEM FOR PROVIDING INFORMATION IN THREE- DIMENSIONALLY SHARED VIRTUAL SPACE AND STORAGE MEDIUM STORING INFORMATION PROVISION PROGRAM IN THREE- DIMENSIONALLY SHARED VIRTUAL SPACE
26.	<u>11 - 328124(1999)</u>	VIRTUAL SPACE DISPLAY SYSTEM
27.	<u>11 - 312160(1999)</u>	METHOD AND DEVICE FOR ANNOTATING DOCUMENT BY AUTONOMOUS PERSONAL AVATAR
28.	<u>11 - 312159(1999)</u>	METHOD AND DEVICE FOR PREPARING AUTONOMOUS PERSONAL AVATAR
29.	<u>11 - 259683(1999)</u>	DEVICE AND METHOD FOR PROCESSING THREE-DIMENSIONAL VIRTUAL SPACE INFORMATION AND PROVIDING MEDIUM
30.	<u>11 - 237940(1999)</u>	METHOD AND SYSTEM FOR MAINTAINING INTERACTIVE RELATION TO VIRTUAL OBJECT
31.	<u>11 - 185053(1999)</u>	CYBERSPACE SYSTEM AND RECORDING MEDIUM IN WHICH PROGRAM TO PROVIDE USER TERMINAL WITH CYBERSPACE IS STORED
32.	<u>11 - 184790(1999)</u>	CYBERSPACE SYSTEM AND RECORDING MEDIUM FOR STORING PROGRAM FOR PROVIDING CYBERSPACE TO USER TERMINAL
33.	<u>11 - 120375(1999)</u>	CLIENT DEVICE, IMAGE DISPLAY CONTROL METHOD, DEVICE AND METHOD FOR COMMON VIRTUAL SPACE PROVISION, AND TRANSMISSION MEDIUM
34.	<u>11 - 085435(1999)</u>	METHOD FOR SUPPRESSING EVENT PROPAGATION IN VIRTUAL SHARED SPACE, AND RECORDING MEDIUM STORING EVENT PROPAGATION SUPPRESSING PROGRAM
35.	<u>11 - 065976(1999)</u>	SYMBOL MANAGING DEVICE AND SYMBOL MANAGING PROGRAM STORING MEDIUM
36.	<u>11 - 025288(1999)</u>	CYBER SPACE SYSTEM AND CYBER SPACE CONSTRUCTING METHOD
37.	<u>11 - 015996(1999)</u>	VIRTUAL SPACE LINE OF SIGHT CONTROLLER
38.	<u>10 - 319831(1998)</u>	CLIENT DEVICE, IMAGE DISPLAY CONTROL METHOD, SHARED VIRTUAL SPACE PROVIDING DEVICE AND METHOD AND PROVIDING MEDIUM
39.	<u>10 - 283339(1998)</u>	DECENTRALIZED THREE-DIMENSIONAL VIRTUAL WORLD SYSTEM
40.	<u>10 - 228501(1998)</u>	METHOD AND SYSTEM FOR MOVING PARTICIPANT IN VIRTUAL SPACE
41.	<u>10 - 154052(1998)</u>	THREE-DIMENSIONAL VIRTUAL REALITY SPACE DISPLAY PROCESSOR, DISPLAY PROCESSING METHOD AND INFORMATION PROVIDING MEDIUM
42.	<u>10 - 105736(1998)</u>	DEVICE AND METHOD FOR IMAGE DISPLAY CONTROL, AND INFORMATION RECORDING MEDIUM
43.	<u>10 - 091649(1998)</u>	METHOD AND DEVICE FOR INFORMATION RETRIEVAL IN STRUCTURED INFORMATION SPACE
44.	<u>10 - 055261(1998)</u>	METHOD AND DEVICE FOR THREE-DIMENSIONAL VIRTUAL SPACE SOUND COMMUNICATION
45.	<u>10 - 040197(1998)</u>	COMMUNICATION MANAGING DEVICE

